

We claim:

1. An apparatus for the automated profiling the edge of successive optical disks, and comprising:

- (a) an optical disk supply assembly for holding a supply of optical disks to be profiled;
- (b) a turntable for receiving an optical disk to be profiled, and for reciprocating between an optical disk loading position and an optical disk profiling position;
- (c) a clamping assembly for clamping the optical disk in a stationary condition to the turntable during movement between the loading position and the profiling position;
- (d) a profiling cutter for profiling the edge of the optical disk when the turntable is in the profiling position;
- (e) a profiled optical disk accumulating assembly for holding optical disks which have been profiled; and
- (f) a pickup assembly mounted for rotation on a shaft between a plurality of positions under automated control of an electronic controller for:
 - (i) applying a lifting force to an optical disk on the optical disk supply assembly for removing an optical disk from the supply assembly;
 - (ii) moving the optical disk to the turntable and interrupting the lifting force to place the optical disk on the turntable;
 - (iii) applying a lifting force to the profiled optical disk to remove it from the turntable; and
 - (iv) moving the optical disk to the profiled optical disk accumulating assembly for storage.

2. An apparatus for profiling optical disks according to claim 1, wherein the shaft of the pickup assembly is adapted for rotating the optical disk whereby the optical disk is oriented into a predetermined position relative to the profiling cutter preparatory to being placed on the turntable.

3. An apparatus for profiling optical disks according to claim 1, and including a second pickup assembly for rotating the optical disk whereby the optical disk is oriented into a predetermined position relative to the profiling cutter preparatory to being profiled.

4. An apparatus for profiling optical disks according to claim 1, wherein said pickup assembly comprises a vacuum lifter for applying a vacuum lifting force to the optical disk.

5. An apparatus for profiling optical disks according to claim 3, wherein said second pickup assembly comprises a vacuum lifter for applying a vacuum lifting force for holding the optical disk while it is rotated.

6. An apparatus for profiling optical disks according to claim 1, wherein said pickup assembly comprises first and second arms carrying respective first and vacuum pickup heads, said first arm adapted for moving the optical disk from the optical disk supply assembly to the turntable, and said second arm is adapted to move the optical disk to the

profiled optical disk accumulating assembly for storage, and said first and second vacuum pickup heads for applying a lifting vacuum force to an optical disk to be lifted.

7. An apparatus for profiling optical disks according to claim 6, wherein said first and second arms are mounted on a common shaft for unison movement relative to each other.

8. An apparatus for profiling optical disks according to claim 7, wherein said first and second arms diverge from said common shaft at a 90 degree angle.

9. An apparatus for profiling optical disks according to claim 1, wherein the clamping assembly for clamping the optical disk in a stationary condition to the turntable during movement between the loading position and the profiling position comprises:

- (a) a clamp for being positioned over the optical disk;
- (b) a spindle carried by the clamp and extending through a hole in the center of the optical disk into the turntable, the spindle including a drift opening therein;
- (c) a drift pin for being moved into the drift opening for applying a clamping pressure on the optical disk and for being moved out of the drift opening for releasing clamping pressure on the optical disk.

10. An apparatus for profiling optical disks according to claim 9, wherein said drift pin includes a tapered surface for riding against a contact surface carried by the spindle

and applying a progressive clamping pressure to the optical disk proportional to the degree of taper and the extent of movement of the drift pin relative to the spindle.

11. An apparatus for profiling optical disks according to claim 1, and including a clamp arm for carrying a clamp from a position radially displaced from the optical disk to a position concentric therewith; inserting the clamp into a hole in the turntable concentric with a center hole in the compact disk, and for detaching from the clamp and leaving the clamp in position on the optical disk.

12. An apparatus for profiling optical disks according to claim 9, wherein said clamping assembly includes:

(a) a spindle carried by the clamp and extending through a hole in the center of the optical disk into the turntable, the spindle including a drift opening therein; and

(b) a drift pin for being moved into the drift opening for applying a clamping pressure on the optical disk and for being moved out of the drift opening for releasing clamping pressure on the optical disk.

13. An apparatus for profiling optical disks according to claim 9, wherein said drift pin includes a tapered surface for riding against a contact surface carried by the spindle and applying a progressive clamping pressure to the optical disk proportional to the degree of taper and the extent of movement of the drift pin relative to the spindle.

14. A method of profiling the edge of successive optical disks to form the optical disk into a predetermined shape, and comprising:

- (a) retrieving an optical disk from an optical disk supply assembly;
- (b) delivering the optical disk to a turntable;
- (c) orienting the optical disk with reference to a point in space predetermined to position the optical disk for being profiled with reference to a pre-printed label on the optical disk;
- (d) clamping the optical disk in a stationary condition to the turntable;
- (e) profiling the edge of the optical disk; and
- (f) accumulating the optical disks which have been profiled in an optical disk accumulating assembly.

15. A method according to claim 14, and including the steps of:

- (a) providing a pickup assembly mounted for rotation on a shaft between a plurality of positions under automated control of an electronic controller;
- (b) applying a lifting force to an optical disk on the optical disk supply assembly for removing an optical disk from the supply assembly;
- (c) moving the optical disk to the turntable and interrupting the lifting force to place the optical disk on the turntable;
- (d) applying a lifting force to the profiled optical disk to remove it from the turntable; and
- (e) moving the optical disk to the profiled optical disk accumulating assembly for storage.

16. A method according to claim 14, wherein the step of orienting the optical disk comprises the steps of:

(a) placing the optical disk on a turntable; and

(b) rotating the turntable with reference to label indicia on the optical disk to place the optical disk in a position whereby the profiling occurs in registration with the shape and orientation of a label thereon.

17. A method according to claim 14, wherein the step of orienting the optical disk comprises the step of rotating the optical disk whereby the optical disk is oriented into a predetermined position in space relative to the profiling cutter preparatory to being placed on the turntable.

18. A method according to claim 14, wherein the step of orienting the optical disk comprises the steps of:

(a) placing the optical disk on the turntable in a random position relative to a label thereon;

(b) lifting the optical disk from the turntable;

(c) rotating the optical disk whereby the optical disk is oriented into a predetermined position in space relative to the profiling cutter preparatory to being profiled; and

(d) replacing the optical disk onto the turntable.